IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF	)	
	)	GROUP NO.: 1771
RICHARD R. ROESLER ET AL	)	
	)	
SERIAL NUMBER: 10/663,826	)	
	)	
FILED: SEPTEMBER 16, 2003	)	
	)	
TITLE: PROCESS FOR PREPARING ASPARTATES	)	

DECLARATION OF RICHARD ROESLER UNDER 37 C.F.R. 1.132

I, Richard R. Roesler, hereby declare as follows:

1. I obtained my B. S. in Chemistry from Hamline University, St. Paul, Minnesota in 1965, and my Ph. D. in Physical-Organic Chemistry from the University of Washington,Seattle, Washington in 1969.

2. From 1986 to present I have been employed at Bayer Corporation, most recently as a Principal Scientist with a focus on resin synthesis and product and process development of specialty urethane chemicals for the coatings and elastomer markets. Previously I was a Development Specialist, Technical Manager and Research Scientist, also in the areas of specialty urethane chemicals for the coatings, elastomer and adhesive markets.

From 1975 to 1986 I served in various positions in the Polymer Division of Henkel Corporation, Minneapolis, Minnesota, including Technical Manager, Section Leader, Group Leader and Senior Research Chemist in the areas of synthesis and research of reactive intermediates, coatings, resins and polymers, and high molecular weight nylons.

3. I am an author of the publications listed in appendix A.

4. I am a named inventor on the patents listed in Appendix B and have an inventor's understanding of the patent system. I am a named inventor of the invention described in the captioned application, and as such am fully familiar with the subject matter therein.

5. Claims 1-10 of the current application are rejected as obvious and unpatentable over Squiller et al. (U.S. Patents 5,489,704 and 5,559,204) or Roesler (U.S. Patent 5,847,195), each in view of Cai (U.S. Patent 6,828,405) and Mormile et al. (U.S. Patent 5,214,086). It is my well considered opinion that the claims of the present application are not obvious in view of the references cited, alone or in combination, for the following reasons.

6. While the imines of aldehyde and ketones have a similar structure, the stability of an aldimine is much different than that of a ketimine and so leads to differences in manufacture and use. The reaction of a primary amine with an aldehyde to give an aldimine is an equilibrium reaction that lies about 99% to the side of the product. To prepare an aldimine the amine and aldehyde are mixed together. The reaction occurs readily and two layers form: an upper organic layer of aldimine and a lower aqueous layer with residual amine. The water is decanted/separated from the organic layer. The organic layer is purified by distillation to remove residual water. The reaction step in the manufacturing process takes about twelve hours.

7. The reaction of a primary amine with a ketone to give an ketimine is an equilibrium reaction that lies about 50% to the side of the product. To prepare a ketimine the amine and ketone are mixed together. The reaction occurs readily to form the equilibrium mixture with droplets of water dispersed in the ketimine. In this case the water must be removed by azeotropic distillation, either using excess ketone or an added hydrocarbon solvent. The removal of the water forces more reaction of amine with ketone. The azeotropic removal of water takes several hours: two to four hours in the laboratory and twenty-four hours in the manufacturing process. Eventually, the reaction is complete and the water is completely removed. Thus, the manufacturing duration for ketimines from the

time the ingredients are homogenous until a product exists in the reactor is double that of aldimines, and so would be undesirable for ketimines.

8. The use of ketimines, as compared to aldimines, was undesirable for other reasons as well. As compared to aldimines, ketimines are known to hydrolyze and give off more volatile organic compounds as a result. Due to industry-wide efforts to control volatile organic compounds, one skilled in the art would not be motivated to substitute ketimines for aldimines in view of this problem.

9. Thus, despite the apparent similarities in structure between an aldimine and a ketimine, the chemistry each provides in a polyisocyanate-based system is quite different. One skilled in the art would not be motivated to substitute ketimines for aldimines as suggested in the Office Action, because of these differences. It is my well reasoned opinion that Claims 1-10 are not obvious in view of the references cited, alone or in combination.

10. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Cod, and the such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Richard R. Roesler

September 19, 2005
Date

APPENDIX A

Publications

- R. R. Roesler, invited columnist for series on statistically designed experimentation, "deSigns of the Times," Paint&Coatings Industry, fourteen articles published from January, 2000 to September, 2005.
- R. R. Roesler, "Statistically Designed Experimentation," FSCT symposium: Research Methods in the 21st Century: A Toolkit for Competitive Advantages, May, 2005
- R. R. Roesler, "High Throughput Experimentation Using Commonly Available Lab Equipment," FSCT symposium: Research Methods in the 21st Century: A Toolkit for Competitive Advantages, May, 2005
- R. R. Roesler, "Thermal stability of N-2-succinylaminoalkoxysilane based ureas" was presented at the 228th National Meeting of the American Chemical Society, Philadelphia, PA, August, 2004.
- Y. Berezkin, R. Roesler and P. Yu, "Development of Polyurethane Dispersion for Surgical Gloves Application," was presented at the International Latex Conference, Akron, Ohio, July, 2004
- R. R. Roesler and K. Danielmeier, "Tris-3-(1-aziridino)propionates and their use in formulated products." Progress in Organic Coatings (2004), 50(1), 1-27.
- C. Jansen and R. R. Roesler, "Dispercoll S Silica Sols for Water Based Adhesives," was presented at the Spring Convention of the Adhesive and Sealants Council, Cleveland, Ohio, April, 2004
- E. P. Squiller and R. Roesler, "Polyaspartics," Am. Chem. Soc. (2003), 225th POLY-365
- S. A. Grace and R. R. Roesler, "New developments in two-component, waterborne polyisocyanate-based coatings for automotive applications," Am. Chem. Soc. (2000), 220th PMSE-116; Polym. Mater. Sci. Eng. (2000), 83, 327-328
- R. R. Roesler, eleven articles published in the continuing series "Applied Statistics Simplified," American Paint and Coatings Journal, April, 1995 to February, 1999.
- P. R. Hergenrother and R. R. Roesler, "Paint and Protective Coating," Standard Handbook of Plant Engineering, R. S. Rosaler, Ed., Chap 18, pp 37–52.
- R. R. Roesler and P. R. Hergenrother, "Two-component polyurethane coatings," Journal of Coatings and Protective Linings, Jan, 1995, pp 83ff.

- S. Luthra and R. R. Roesler, "Resin Advances help spur VOC reductions, improve properties in polyurethane maintenance coatings," Paint & Coatings Industry, May, 1994, pp 44–49.
- R. R. Roesler and R. S. Dearth, "One component polyurethane coatings and sealants: innovative automotive applications," SAE International Congress and Exposition, Detroit, MI, Feb, 1991.
- R. R. Roesler, W. Cibulus and M. B. Bassi, "Polyurethanes: Low VOC Coatings for Concrete," SSPC91, Steel Structures Painting Council, Long Beach California, Nov, 1991.
- R. R. Roesler and R. W. Rumer, "Novel Waterborne Primer Surfacers,"
- R. R. Roesler and V. Mirgel, "Chip Resistant Coatings for the Automotive Industry," SAE International Congress and Exposition, Detroit, MI, Feb, 1989.
- R. R. Roesler, "An interpenetrating polymer network for high solids coatings," Waterborne and Higher Solids Coatings Symposium, New Orleans, LA, Feb, 1986.
- R. R. Roesler, "Using IPNs to formulate high-solids coatings," Modern Paint and Coatings (1986), 76(4), pp 46ff.

APPENDIX B

Patents

R. R. Roesler et al, thirty U.S. patent applications pending.

1. R. R. Roesler, P. B. Jacobs, D. Pethiyagoda, T. H. Riggio, M. M Salek and E. Yuhas, "Blocked isocyanate," U.S. 6894138, May 17, 2005
2. R. R. Roesler, D. L. Crawford, K. C. Frisch, K. M. Henderson and M. D. Strohecker, "Moisture-curable, polyether urethanes with reactive silane groups and their use as sealants, adhesives and coatings," U.S. 6,887,964, May 3, 2005
3. R. R. Roesler, D. L. Crawford, K. C. Frisch, D. Pethiyagoda, and K. Danielmeier, "Moisture-curable, polyether urethanes with reactive silane groups and their use as sealants, adhesives and coatings," U.S. 6,844,413, January 18, 2005
4. R. R. Roesler, D. L. Crawford, K. C. Frisch, K. Danielmeier and D. Pethiyagoda, "Moisture-curable, polyether urethanes with reactive silane groups and their use as sealants, adhesives and coatings," U.S. 6,833,423, December 21, 2004
5. R. R. Roesler, D. L. Crawford, K. C. Frisch, K. Danielmeier, D. Pethiyagoda and G. Ruttmann, "Moisture-curable, polyether urethanes with reactive silane groups and their use as sealants, adhesives and coatings," U.S. 6,809,170, October 26, 2004
6. K. Danielmeier, C. M. Britsch, R. Gertzmann, M. E. Vargo, T. D. Wayt, E. P Squiller and R. R. Roesler, "In-situ preparation of polyaspartic ester mixtures," U.S. 6,790,925, September, 14, 2004
7. R. R. Roesler, "Polyaspartic resins with good hardness and flexibility," U.S. 6,774,207, August 10, 2004
8. R. R. Roesler, "In-situ preparation of polyaspartic ester mixture," U.S. 6,737,500, May 18, 2004
9. R. R. Roesler, "In-situ preparation of polyaspartic ester mixture," U.S. 6,590,066, July 8, 2003
10. R. R. Roesler and E. P. Squiller, "Polyurea coatings from dimethyl-substituted polyaspartic ester mixtures," US 6,482,333, November 19, 2002
11. R. R. Roesler and E. P. Squiller, "Polyurea coatings from dimethyl-substituted polyaspartic ester mixtures," US 6,458,293, October 1, 2002
12. R. R. Roesler and P. R. Hergenrother, "Two-component coating compositions containing silane adhesion promoters," US 6,444,325, September 3, 2002
13. R. R. Roesler, L. K. Gindin and P. R. Hergenrother, "Aspartate-terminated urea/urethane prepolymers and their use I coating compositions," U.S. 6,355,829, March 12, 2002.

14. R. R. Roesler, P. R. Hergenrother, L. K. Gindin and E. P. Squiller "Coating composition containing polyisocyanate and aspartate-terminated urea/urethane prepolymer," U.S. 6,183,870, February 6, 2001

15. R. R. Roesler "Moisture-curable compositions containing isocyanate and succinyl urea groups," U.S. 6,180745, February 1, 2001

16. R. R. Roesler and M. W. Shaffer "Moisture-curable compositions containing polyisocyanates and polyacrylates having alkoxysilane groups," U.S. 6,169,140, January 2, 2001

17. R. R. Roesler "Moisture-curable compositions containing polyisocyanates and compounds with alkoxysilane groups," U.S. 6,114,436, September 5, 2000.

18. P. C. Yu, W. A. Corso, R. R. Roesler "Aqueous compounds containing alkoxysilane and/or silanol groups," U. S. 6,111,010, August 29, 2000

19. R. R. Roesler and L. Schmalstieg, "Moisture-curable compounds containing isocyanate and alkoxysilane groups," U. S. 6,077,902, June 20, 2000.

20. R. R. Roesler and L. K. Gindin, "Aqueous compositions containing mixtures of silane-functional resins," U. S. 6,007,901, June 20, 2000.

21. P. C. Yu, W. A. Corso, R. R. Roesler and J. R. Kleer "Aqueous compositions containing colloidal silica and compounds with alkoxysilane and/or silanol groups," U.S. 6,063,863, May 16, 2000.

22. R. R. Roesler, M. Shaffer, P. C. Yu and L. Schmalstieg, "Water dispersible polyisocyanates containing alkoxysilane groups," U.S. 6,057,415, May 2, 2000

23. R. R. Roesler and L. Schmalstieg "Silane-modified polyurethane resins, their preparation and use as moisture-curable resins for films and coatings," U.S. 6,046,270, April 4, 2000.

24. M. W. Shaffer, R. R. Roesler and L. Schmalstieg "Moisture-curable compounds containing isocyanate and alkoxysilane groups," U.S. 6,005,047, December 21, 1999.

25. R. R. Roesler and L. Schmalstieg, "Water dispersible compounds containing alkoxysilane groups, U.S. 5,952,445 September 14, 1999.

26. R. R. Roesler, P. Yu and L. Schmalstieg, "Aqueous two-component coating composition," U.S. 5,945,476, August 31, 1999.

27. R. R. Roesler, L. Schmalstieg and L. K. Gindin, "Aqueous polyurethane/urea dispersions containing alkoxysilane groups," U.S. 5,932,652, August 3, 1999

28. R. R. Roesler and L. K. Gindin "Aqueous polyurethane/urea dispersions containing alkoxysilane groups," U.S. patent 5,919,860, July 6, 1999.

29. R. R. Roesler, E. P. Squiller, P. E. Yeske and S. F. Siranovich, "Compounds containing urea and alkoxysilane groups," U.S. 5,908,948, June 1, 1999.

30. R. R. Roesler, L. Schmalstieg and L. K. Gindin, "Aqueous dispersions of polyurethane/ureas containing alkoxysilane groups and colloidal silicas," U.S. 5,859,118, January 12, 1999.

31. R. R. Roesler, "Process for the production of compounds containing aspartate and aldimine groups," U.S. 5,847,195, December 8, 1998.

32. L. Schmalstieg, R. Rettig, G. Limbeck, R. R. Roesler, E. P. Squiller, P. E Yeske and S. F. Siranovich, "Compounds containing alkoxysilane groups and hydantoin groups," U.S. 5,756,751, May 26, 1998.

33. P. B. Jacobs, T. A. Potter, R. R. Roesler, and R. W. Rumer, "Polyisocyanates containing allophanate and isocyanurate groups, a process for their production from a mixture of diisocyanates and their use in two-component coating compositions," US 5,258,482, Nov 2, 1993

34. R. S. Dearth, R. R. Roesler, N. H. Nodelman and P. D. Schmitt, "High solids, chip resistant polyurethane coating made from ketoxime blocked polyisocyanate and cyclohexane dicarboxylic acid polyester," US 5,202,406, Apr 13, 1993

R. R. Roesler, "Acrylic polyols having low residual monomer content," EP 197460, Oct 15, 1986

35. R. R. Roesler, "Adhesive bonding process, " US 4,363,689, Dec 14, 1982

36. J. E. Billigmeier, A. L. Melby, D. E. Peerman and R. Roesler, "Crosslinkable polyamides derived from polymeric fat acids," US 3,892,785, Jul 1, 1975